

# Umetco Minerals Corporation

MAY 19 1986



PO BOX 579 4625 ROYAL AVENUE • NIAGARA FALLS NEW YORK 14302

May 15, 1986

Dr. F. J. Bradley  
Principle Radiophysicist  
New York State Department of Labor  
Room 813  
One Main Street  
Brooklyn, NY 11202

Subject Umetco Minerals Corporation, Niagara Falls, NY

Dear Dr Bradley

In our phone conversation of Tuesday, May 13 we discussed disposal of two low level radioactive materials that were discovered in a radiation survey of the Umetco property in Niagara Falls, NY. The first was illmenite sand (an iron titanium ore) that had been used to backfill a 10' x 10' concrete pit. The second was an isolated quantity of slag (calcium-aluminum oxide) from the furnacing of ferrovanadium. The illmenite sand was removed from the pit and currently is contained in 125 (one hundred twenty-five) 55-gallon drums. I would estimate total weight at approximately 40 to 50 tons. The slag is in lumps in a pile that I would estimate to contain 50 to 75 tons. Analyses of the materials are presented in the following Table 1.

TABLE 1

## Radiochemical Analyses of Samples From the Niagara Plant

| <u>Description</u>               | <u>Analyses</u>               |                               |                               |                               |                               |
|----------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|
|                                  | <u>URANIUM SERIES</u>         |                               |                               | <u>THORIUM SERIES</u>         |                               |
|                                  | <u>Uranium</u><br><u>µg/g</u> | <u>Th-230</u><br><u>pCi/g</u> | <u>Ra-226</u><br><u>pCi/g</u> | <u>Th-232</u><br><u>pCi/g</u> | <u>Th-228</u><br><u>pCi/g</u> |
| Illmenite Sand - Top of Pit      | 28 9                          | 12±2                          | 19±2                          | 16±2                          | 17±2                          |
| Illmenite Sand - 7' in Pit       | 44 3                          | 22±2                          | 31±3                          | 37±2                          | 39±3                          |
| Dark Slag-Yard East of Fce Bldg  | 20 2                          | 299±7                         | 4 4±1 1                       | 16±2                          | 4±9                           |
| Light Slag-Yard East of Fce Bldg | 18 6                          | 466±9                         | 7 0±1 4                       | 37±3                          | 14±2                          |

Industrial Code Rule 38, Table 5 "Limits for Uncontrolled Areas" limits source material to 0.05 percent by weight (500 µg/g or 500 ppm). For Thorium 232 this converts to 55 pCi/g. The concentrations of Th-232 reported in picocuries in Table 1 were converted to µg/g and added to the weight of uranium to determine the total source material present. This is shown in Table 2.

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The gamma radiation measured at the surface during excavation of the pit and within the slag pile is also reported in Table 2.

TABLE 2

Weight of Source Material

| <u>Sample</u>         | <u>Uranium<br/>μg/g</u> | <u>Th-232<br/>μg/g</u> | <u>Total Source<br/>Material<br/>μg/g</u> | <u>Gamma<br/>Radiation<br/>μR/hr*</u> |
|-----------------------|-------------------------|------------------------|---|---------------------------------------|
| Illmenite-Top of Pile | 28.9                    | 145.5                  | 174.4                                     | 170                                   |
| Illmenite-7' In Pit   | 44.3                    | 336.4                  | 380.7                                     | 150                                   |
| Dark Slag             | 20.2                    | 145.5                  | 165.7                                     | 150                                   |
| Light Slag            | 18.6                    | 336.4                  | 355.0                                     | 200                                   |

\*Ludlum Model 19 Micro R Meter - Reading at Surface

As we discussed the total source material in both materials is less than 500 μg/g, the limit for uncontrolled areas and the radiation is less than 250 μR, the limit for fixed surface contamination

Although technically the material was not sufficiently radioactive to be controlled you convinced me that it was not a good idea to use it to fill a low area in the yard. If this were done then a rider would have to be appended to the lease that would restrict future building. Since this is not an attractive option I propose to dispose of both the slag and illmenite in a local hazardous waste repository

Unless I misunderstood, you did not voice an objection to this during our phone conversation. Therefore, I plan to immediately begin the paper work to initiate this course of action. However I will not remove anything from the property before June to allow you time to reconsider. I will not expect to hear from you unless you disapprove.

I enjoyed talking to you on Monday and I want to thank you again for the assistance you provided

Sincerely



D. J. Hansen  
Assistant Director - Technology

cc: Messrs.  
R. F. Kelly  
R. G. Beverly  
F. V. McMillen

Blind Copies      Messrs  
✓ J. F. Frost  
T. J. Kagetsu  
D. G. Millenbruch  
R. L. Miller  
W. D. Smith  
C. T. Wentzel

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